

S E C R E T

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DD/A Registry

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29 MAR 1979

MEMORANDUM FOR: Deputy Director for Operations
Deputy Director for Administration
Director, National Foreign Assessment Center

SUBJECT: Programming for Exploratory Research

1. We have had a number of problems in the past funding exploratory efforts in ORD. For the FY-81 program submission we have taken a slightly different tact as explained in the attachment.

2. I would appreciate receiving your comments on this proposed method if you choose to make any.

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LESLIE C. DIRKS
Deputy Director
for
Science and Technology

Attachment: a/s

RECLASSIFY UNCLASSIFIED
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S E C R E T

PROGRAMMING FOR EXPLORATORY RESEARCH

Summary

The FY-81 CIAP RD&E Program reflects a new approach to programming funds for exploratory research. This approach was adopted in order to make clear the CIA commitment to maintain this critical function and to provide for a more timely and focused application of the exploratory research resources to critical Agency problems. Additionally, it is also believed that this approach will eliminate the competition for funds between time sensitive well defined D&E programs and the longer range loosely defined research objectives.

Briefly, this concept identifies all funds for exploratory research in a given area as a single activity within the minimum of the appropriate Decision Unit. For example, all funds for Exploratory Research in support of Human Source Collection are included within the Clandestine R&D minimum decision package.

Discussion

Over the past few years, as budgetary pressures have mounted, the CIAP RD&E has reflected only limited growth and in some years has actually been reduced. In each of these instances exploratory research has been viewed as discretionary and consequently has suffered reductions in funds and people. This situation will obviously be repeated in each tight budget year. If the CIA is to have a long term, responsive R&D program, this fluctuation in research resources can not be tolerated. Additionally, it has become increasingly apparent that with limited resources, the research resources must be more precisely focused on the needs of our D&E offices who in-turn are providing products to the entire Agency.

It is firmly believed that this new concept for programming research funds will eliminate the drastic year-to-year fluctuations in resources and will allow for a more focused application of the limited resources by waiting until the start of the execution year to allocate the funds to precise research tasks in support of approved D&E activities.

Procedure

Given that the funds are programmed as stated above, the new concept calls for the precise allocation of the funds to be determined just prior to the start of the execution year. That is, the decision to allocate funds for the research efforts to be undertaken in FY-81 would be made in about July of CY-80.

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PROGRAMMING FOR EXPLORATORY RESEARCH

Procedure (Continued)

Furthermore, the allocation would be made on the basis of priorities for exploratory support derived from NFAC, DDO, DDA, internal offices and D&E office interactions associated with the development of the FY-82 RD&E program. By July 1980 the critical D&E items in the FY-82 program will have been identified and defended through the CIA review process and can be the basis for prioritizing the exploratory tasks for FY-81.

Upon completion of this exercise the precise tasks to be undertaken will be forwarded to O/Comptroller.

The following paragraphs provide generic descriptions of the research tasks that may be undertaken in each of the decision units for which an exploratory research effort is planned.

Multipurpose Exploratory Research

The Multipurpose Exploratory Research program advances a wide range of new technologies which may be applied to multiple Agency components. Often our needs have no specific counterpart outside the intelligence world and our ability to meet these unique intelligence needs would be limited by commercially driven technology. For example, the nature of CIA's clandestine activities typically requires devices that are: concealable, reliable, and have long shelf-and operating-life.

In carrying out the Multipurpose Exploratory Research program, some projects will have the specific objective of increasing the performance of intelligence systems at the component level. Other projects will attempt to adapt existing but embryonic technologies to intelligence needs at the system and functional level. Still other techniques are useful not only to collection, but also to intelligence production and Agency operation as well. Finally, a portion of the Exploratory Research efforts will be to establish a new technology base for exploitation in the future; i.e., to move some science from the stage of theoretical exposition or laboratory curiosity to a position of usefulness to the Agency. In each case, the research efforts address technologies that can solve problems the intelligence process.

In the area of micropower and energy conversion, the research will search for techniques to provide more reliable and efficient electronic components and power sources for intelligence equipments. This effort seeks to overcome the technical and operational constraints of concealing sensitive intelligence collection devices in hostile environments. Reduced size and power requirements will allow novel access opportunities.

PROGRAMMING FOR EXPLORATORY RESEARCH

Multipurpose Exploratory Research (Continued)

A wide range of data storage problems faces the CIA: digital imagery storage; SIGINT collection and other clandestine recording needs - local analyst data base storage. In the area of advanced memories, technology will be developed to allow the Agency to fulfill specialized needs for recorder systems and media.

The Agency has a continuing need to protect sensitive information of all types. There is a problem of protecting documentary information, materials sent in pouches, materials stored in US installations, and sensitive conversations held in official and unofficial installations. In this Multipurpose Exploratory Research effort, studies to protect physical materials (documents, pouches, etc.) and to detect and nullify hostile surveillance systems will be continued. Also, because there is a continuing need to prevent penetration of the Agency by hostile intelligence services, research will continue on polygraph and "polygraph-like" screens.

Increasing amounts of information on events of intelligence interest are received at Headquarters in many forms (signal tapes, imagery, text, charts, etc.) and at diverse times. Because the number of analysts is essentially fixed, new tools are required to sort out information related to an event of interest and to interrelate otherwise disparate information. Research will be performed in new technologies of computer data base management to support specific and differing needs of analysts and varied Agency components. Additionally, work will be done to increase the ability of analysts to interactively display and manipulate data to aid their cognitive processes.

In summary, the Multipurpose Exploratory Research Decision Unit advances technology against a broad spectrum of identified future CIA problems and objectives. By its very nature this package supports all of the Agency's RD&E activities and is the foundation of our Exploratory Research Program.

Production Exploratory Research

This package provides for basic, and exploratory research to enhance the intelligence analysis process. This effort is needed to narrow the ever-widening gap between the Agency's collection capability and its processing and analytical capacity. Commercial factors cannot be counted on to advance technological growth on which the foundations of improved analytical methodologies must rest. The Agency must be prepared to provide properly for its analytical methodology milestones. There is no real, long-term alternative.

PROGRAMMING FOR EXPLORATORY RESEARCH

Production Exploratory Research (Continued)

To date, a number of applications of new methods for processing, managing, and displaying data have been effectively transferred from ORD to the operational analytic environment. Of the specific analytic tools, the application of statistical methods has shown the most promise, especially as they relate to inference-making with incomplete data. New approaches to modeling, probabilistic information processing, decision analysis and other formalisms must continue to be explored and evaluated as potential tools for both day-to-day and crisis intelligence production. For the more promising of these, considerable emphasis must be placed on understanding how to apply them in an interdisciplinary way -- that is, across the traditional grain of the organization.

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PROGRAMMING FOR EXPLORATORY RESEARCH

Clandestine Exploratory Research (Continued)

As CIA's intelligence requirements continue to expand around the world, target countries are becoming more sophisticated and competitive with the U.S. technology. The problem is made worse by the reduced opportunities for clandestine proximity of Americans with individuals and locations of interest. As a consequence of these changes, the CIA through the DDO will have more need, but less access to intelligence that in the past could have been available through overt or semi-sophisticated techniques. To help overcome these future problems, the CIA level of technical sophistication must rise to keep pace with that of our adversaries. This can only be done through a sustained Clandestine Exploratory Research Program pursued on a variety of fronts.

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ROUTING AND RECORD SHEET

DD/A Registry

File Contracts

SUBJECT: (Optional)

Programming for Exploratory Research

FROM:

Deputy Director for Science
and Technology

EXTENSION

NO.

DATE

29 Mar 79

TO: (Officer designation, room number, and
building)

DATE

RECEIVED

FORWARDED

OFFICER'S
INITIALSCOMMENTS (Number each comment to show from whom
to whom. Draw a line across column after each comment.)A/ Deputy Director for Administration
7 D 18 Hqs

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D

Danny: This

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seems a topic

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that would be of

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cc sent
D/OC
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4/9/79

interest to you!

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EE/DDA

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They ask for comments!

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Bob - I don't think there
is anything here that
deserves comment.

10.

Until they put together

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to 4-5

Any Comments?

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their annual program,
we really don't know which
items they will choose
out of their open-ended
shopping list. So whether
OC or ODP want to
comment -4 APR
1979

ROUTING AND TRANSMITTAL SLIP

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. <i>EO/DDA</i>	<i>4/9</i>	<i>[Signature]</i>
2. _____		
3. <i>A/DDA</i>	<i>4/9</i>	<i>[Signature]</i>
25X1 4. 	<i>4/10</i>	<i>[Signature]</i>
5. <i>Reg - subject</i>		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Copies have been sent via tube to D/OS and D/ODP - also sent copy of DDS&T Memo "Programming for Exploratory Research" dated 29 Mar for comment, if any.

Action — OS
ODP

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
	Phone No.